



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,544	01/14/2005	Hiroshi Mashima	258285US2PCT	1342
22850	7590	04/06/2006	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			LE, TUNG X	
			ART UNIT	PAPER NUMBER
			2821	

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/506,544

Applicant(s)

MASHIMA ET AL.

Examiner

Tung X. Le

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 09/03/2004; 5/2/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This is a response to the applicant's filing on January 14, 2005. In virtue of this filing, claims 1-8 are currently presented in the instant application.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Morita (U.S. Patent No. 5,543,688).

With respect to claim 1, Morita discloses in figure 1 a radio frequency power supply structure (column 2, lines 35-37) for use in a device generating plasma (column 2, lines 30-31) by charging a plate-like electrode [53] with a radio frequency power [58], the radio frequency power supply structure supplying the electrode with the radio frequency power from an RF cable (column 3, lines 39-41), wherein the RF cable is positioned on an extended plane of a plane (see figure 1) formed by the electrode to connect to the electrode at a connecting portion (figures 1 and 2) provided on an end peripheral portion (figure 1).

With respect to claim 2, Morita discloses that the connecting portion is provided forms a right angle to the RF cable on the plane formed by the electrode at the connecting portion (figure 1).

With respect to claim 4, Morita discloses that the RF cable is directed in parallel with the plurality of longitudinal electrodes [53] to connect to the electrode at the connecting portion (see figure 1).

With respect to claim 5, Morita discloses that the RF cable directly connects to one of the plurality of longitudinal electrodes [53] at the connecting portion (figure 1).

With respect to claim 6, Morita discloses that a core cable (figure 1) of the RF cable connects to the electrode so as to form a smoothly curved continuous surface at the connecting portion (see figure 1).

With respect to claim 8, Morita discloses a plasma CVD device comprising a radio frequency power supply structure (column 3, lines 39-41).

3. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Maher, Jr. et al. (U.S. Patent No. 4,381,965).

With respect to claim 1, Maher discloses in figure 4 a radio frequency power supply structure for use in a device generating plasma (figure 4) by charging a plate-like electrode [19-25] with a radio frequency power [44], the radio frequency power supply structure supplying the electrode with the radio frequency power from an RF cable (column 6, lines 56-59), wherein the RF cable is positioned on an extended plane of a plane (see figure 4) formed by the electrode to connect to the electrode at a connecting portion (figures 4 and 5) provided on an end peripheral portion (figure 4).

With respect to claim 3, Maher discloses that the electrode [19] forms a longitudinal grid plate shape having two lateral electrodes [34,35] forming two mutually

opposed end peripheral electrodes arranged between the two lateral electrodes so as to connect to the two lateral electrodes (see figure 4).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morita (U.S. Patent No. 5,543,688) in view of Buchberger, JR. et al. (U.S. Publication No. 2005/0178748 A1).

With respect to claim 7, Morita discloses all of the claimed limitations, as expressly recited in claim 1, except for specifying that an outer shell of the RF cable is functioned as earth.

Buchberger, JR. et al. discloses in figure 1 an outer shell of a RF cable [162] is functioned as earth (see paragraphs [0152,0153]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the plasma generation apparatus of Morita by employing an outer shell of a RF cable being functioning as earth purpose for reducing the footprint coaxial tuning stub to achieve a high frequency characteristic of a matching impedance of the strip line conductor and the ground since such a ground of the outer shell of the RF cable has been well known in the art as evidenced by the teaching of Buchberger JR. (see paragraph [0120]).

Citation of Relevant Prior Art

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prior art Yang et al. (U.S. Patent No. 6,900,596 B2) – Capacitively Coupled Plasma Reactor with Uniform Radial Distribution of Plasma;

Prior art Holland et al. (U.S. Patent No. 6,028,395) – Vacuum Plasma Processor Having Coil with Added Conducting Segments to Its Peripheral Part;

Prior art Hamamoto et al. (U.S. Patent No. 5,261,962) – Plasma Chemical Vapor-Phase Epitaxy System Comprising a Planar Antenna;

Prior art Babu et al. (U.S. Patent No. 5,061,359) – Plasma Processing Apparatus Including Three Bus Structures;

Prior art Jann et al. (U.S. Publication No. 2003/0048591 A1) – Desmearing Process/Apparatus for Pulse-Type D.C. Plasma; and

Prior art Sumiya et al. (U.S. Publication No. 2002/0038631 A1) – Plasma Processing Apparatus and Method Using Active Matching.

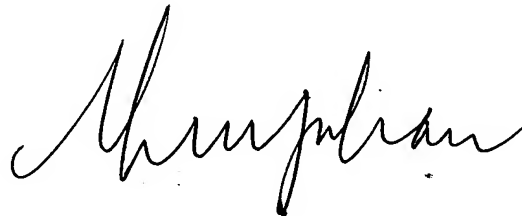
Inquiry

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung X. Le whose telephone number is 571-272-6010. The examiner can normally be reached on 8:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner
Tung Le
AU 2821

A handwritten signature in black ink, appearing to read 'Thuy V. Tran', is positioned above the printed name and title.

THUY V. TRAN
PRIMARY EXAMINER